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Air Operating Permit Excess Emissions Report Form Part II

| | | | |
|---------------------------------|-----------------------------|---|------------|
| Name of Facility | Shell, Puget Sound Refinery | Reported by | Tim Figgie |
| Date of notification | November 23, 2010 | Incident type: breakdown/ upset/startup or shutdown | Breakdown |
| Start Date | November 23, 2010 | Start Time: | 1:00 AM |
| End Date | November 23, 2010 | End Time: | 2:00 AM |
| Process unit or system(s): SRU4 | | | |

Incident Description

On November 23, 2010 at around 1 AM the SRU4 tripped out due loss of amine acid gas (AAG) feed. The loss of AAG feed was caused by valves on the amine recovery unit (ARU) that had froze up due to a cold winter storm that hit the area. With the loss of AAG feed the automated control systems shutdown the SRU3 and the diverter valves automatically bypass the Tail Gas unit, which results in high SO₂ in the incinerator stack. Once the unit was stabilized the SO₂ emissions dropped. The 250-ppm SO₂ 12-hour rolling average limit was not exceeded.

Immediate steps taken to limit the duration and/or quantity of excess emissions:

SRU4 operations was stabilized as soon as possible.

Applicable air operating permit
term(s): 4.10 & 4.11

| | | |
|---|----------------------------------|--------------------------|
| Estimated Excess Emissions: Based on SO ₂ CEMS and calculated stack flow | Pollutant(s): SO ₂ | Pounds (Estimate): 98 |
|---|----------------------------------|--------------------------|

The incident was the result of the following (check all that apply):

- ☐ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☐ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☐ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

- ☒ No
- ☐ Yes (provide details below)

Root and other contributing causes of incident:

The root cause of this incident was valves on the ARU that froze due to cold temperatures that hit the area.

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The root cause of the incident was:

(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

- ☒ Identified for the first time
☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

- ☐ No
☒ Yes (describe below)

The root cause of this incident was valves on the ARU that froze due to cold temperatures that hit the area.

Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2

Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

The problematic valves have been added to a yearly check off sheet for cold weather protection.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above


Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

Is the investigation continuing? ☒ No ☐ Yes

Is the source requesting additional time for completion of the report? ☒ No ☐ Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: Jason Smolsnik Date: November 23, 2010

Responsible Official or Designee:  Date: 12/28/10